#4

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Schmülling et al

Serial No.: 10/014,101

Filed: December 10, 2001

For: METHOD FOR MODIFYING PLANT MORPHOLOGY, BIOCHEMISTRY AND PHYSIOLOGY

Examiner: (Not Yet Assigned)

Group: Art Unit 2637

Docket: 1195-2

Dated: April 30, 2002

BOX SEQUENCE, P.O. BOX 2327
Arlington, VA 22202

Statement under 37 C.F.R. §1.825(a) and (b)

Sir:

I hereby state that the information recorded in the substitute paper copy of the Sequence Listing submitted herewith, includes no new matter. The information contained in computer readable form (CRF) of the sequence listing, also submitted herewith, is the same as the information recorded in the substitute paper copy of the sequence listing. The submission of both the substitute paper copy and initial CRF of the Sequence Listing is fully supported by, and does not introduce new matter into, the application as originally filed.

Respectfully submitted,

Ann R. Pokalsky
Reg. No. 34,697

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Dated: April 30, 2002

Bridget Griffin

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SEQUENCE LISTING

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Glu Val Ala Pro Lys Arg Ala Lys Trp Leu Arg Phe Leu Tyr Ile Asp
245 250 255

Phe Ser Glu Phe Thr Arg Asp Gln Glu Arg Val Ile Ser Lys Thr Asp
260 265 270

Gly Val Asp Phe Leu Glu Gly Ser Ile Met Val Asp His Gly Pro Pro
275 280 285

Asp Asn Trp Arg Ser Thr Tyr Tyr Pro Pro Ser Asp His Leu Arg Ile
290 295 300

Ala Ser Met Val Lys Arg His Arg Val Ile Tyr Cys Leu Glu Val Val
305 310 315 320

Lys Tyr Tyr Asp Glu Thr Ser Gln Tyr Thr Val Asn Glu Glu Met Glu
325 330 335

Glu Leu Ser Asp Ser Leu Asn His Val Arg Gly Phe Met Tyr Glu Lys
340 345 350

Asp Val Thr Tyr Met Asp Phe Leu Asn Arg Val Arg Thr Gly Glu Leu
355 360 365

Asn Leu Lys Ser Lys Gly Gln Trp Asp Val Pro His Pro Trp Leu Asn
370 375 380

Leu Phe Val Pro Lys Thr Gln Ile Ser Lys Phe Asp Asp Gly Val Phe
385 390 395 400

Lys Gly Ile Ile Leu Arg Asn Asn Ile Thr Ser Gly Pro Val Leu Val
405 410 415

Tyr Pro Met Asn Arg Asn Lys Trp Asn Asp Arg Met Ser Ala Ala Ile
420 425 430

Pro Glu Glu Asp Val Phe Tyr Ala Val Gly Phe Leu Arg Ser Ala Gly
435 440 445

Phe Asp Asn Trp Glu Ala Phe Asp Gln Glu Asn Met Glu Ile Leu Lys
450 455 460

Phe Cys Glu Asp Ala Asn Met Gly Val Ile Gln Tyr Leu Pro Tyr His
465 470 475 480

Ser Ser Gln Glu Gly Trp Val Arg His Phe Gly Pro Arg Trp Asn Ile
485 490 495

Phe Val Glu Arg Lys Tyr Lys Tyr Asp Pro Lys Met Ile Leu Ser Pro
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Gly Gln Asn Ile Phe Gln Lys Ile Asn Ser Ser

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Phe Leu Pro Ile Ser Leu Asn Leu Thr Val Leu Thr Asp Pro Phe Ser
35 40 45

Ile Ser Ala Ala Ser His Asp Phe Gly Asn Ile Thr Asp Glu Asn Pro
50 55 60

Gly Ala Val Leu Cys Pro Ser Ser Thr Thr Glu Val Ala Arg Leu Leu
65 70 75 80

Arg Phe Ala Asn Gly Gly Phe Ser Tyr Asn Lys Gly Ser Thr Ser Pro
85 90 95

Ala Ser Thr Phe Lys Val Ala Ala Arg Gly Gln Gly His Ser Leu Arg
100 105 110

Gly Gln Ala Ser Ala Pro Gly Gly Val Val Val Asn Met Thr Cys Leu
115 120 125

Ala Met Ala Ala Lys Pro Ala Ala Val Val Ile Ser Ala Asp Gly Thr
130 135 140

Tyr Ala Asp Val Ala Ala Gly Thr Met Trp Val Asp Val Leu Lys Ala
145 150 155 160

Ala Val Asp Arg Gly Val Ser Pro Val Thr Trp Thr Asp Tyr Leu Tyr
165 170 175

Leu Ser Val Gly Gly Thr Leu Ser Asn Ala Gly Ile Gly Gly Gln Thr
180 185 190

Phe Arg His Gly Pro Gln Ile Ser Asn Val His Glu Leu Asp Val Ile
195 200 205

Thr Gly Lys Gly Glu Met Met Thr Cys Ser Pro Lys Leu Asn Pro Glu
210 215 220

Leu Phe Tyr Gly Val Leu Gly Gly Leu Gly Gln Phe Gly Ile Ile Thr
225 230 235 240

Arg Ala Arg Ile Ala Leu Asp His Ala Pro Thr Arg Val Lys Trp Ser
245 250 255

Arg Ile Leu Tyr Ser Asp Phe Ser Ala Phe Lys Arg Asp Gln Glu Arg
260 265 270

Leu Ile Ser Met Thr Asn Asp Leu Gly Val Asp Phe Leu Glu Gly Gln
275 280 285

Leu Met Met Ser Asn Gly Phe Val Asp Thr Ser Phe Phe Pro Leu Ser
290 295 300

Asp Gln Thr Arg Val Ala Ser Leu Val Asn Asp His Arg Ile Ile Tyr
305 310 315 320

Val Leu Glu Val Ala Lys Tyr Tyr Asp Arg Thr Thr Leu Pro Ile Ile
325 330 335

Asp Gln Val Ile Asp Thr Leu Ser Arg Thr Leu Gly Phe Ala Pro Gly
340 345 350

Phe Met Phe Val Gln Asp Val Pro Tyr Phe Asp Phe Leu Asn Arg Val
355 360 365

Arg Asn Glu Glu Asp Lys Leu Arg Ser Leu Gly Leu Trp Glu Val Pro
370 375 380

His Pro Trp Leu Asn Ile Phe Val Pro Gly Ser Arg Ile Gln Asp Phe
385 390 395 400

His Asp Gly Val Ile Asn Gly Leu Leu Leu Asn Gln Thr Ser Thr Ser
405 410 415

Gly Val Thr Leu Phe Tyr Pro Thr Asn Arg Asn Lys Trp Asn Asn Arg
420 425 430

Met Ser Thr Met Thr Pro Asp Glu Asp Val Phe Tyr Val Ile Gly Leu
435 440 445

Leu Gln Ser Ala Gly Gly Ser Gln Asn Trp Gln Glu Leu Glu Asn Leu
450 455 460

Asn Asp Lys Val Ile Gln Phe Cys Glu Asn Ser Gly Ile Lys Ile Lys
465 470 475 480

Glu Tyr Leu Met His Tyr Thr Arg Lys Glu Asp Trp Val Lys His Phe
485 490 495

Gly Pro Lys Trp Asp Asp Phe Leu Arg Lys Lys Ile Met Phe Asp Pro
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Lys Arg Leu Leu Ser Pro Gly Gln Asp Ile Phe Asn
515 520

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Ala Ile Asp Val Asp Gly His Phe Thr Val His Pro Ser Asp Leu Ala
35 40 45

Ser Val Ser Ser Asp Phe Gly Met Leu Lys Ser Pro Glu Glu Pro Leu
50 55 60

Ala Val Leu His Pro Ser Ser Ala Glu Asp Val Ala Arg Leu Val Arg
65 70 75 80

Thr Ala Tyr Gly Ser Ala Thr Ala Phe Pro Val Ser Ala Arg Gly His
85 90 95

Gly His Ser Ile Asn Gly Gln Ala Ala Ala Gly Arg Asn Gly Val Val
100 105 110

Val Glu Met Asn His Gly Val Thr Gly Thr Pro Lys Pro Leu Val Arg
115 120 125

Pro Asp Glu Met Tyr Val Asp Val Trp Gly Gly Glu Leu Trp Val Asp
130 135 140

Val Leu Lys Lys Thr Leu Glu His Gly Leu Ala Pro Lys Ser Trp Thr
145 150 155 160

Asp Tyr Leu Tyr Leu Thr Val Gly Gly Thr Leu Ser Asn Ala Gly Ile
165 170 175

Ser Gly Gln Ala Phe His His Gly Pro Gln Ile Ser Asn Val Leu Glu
180 185 190

Leu Asp Val Val Thr Gly Lys Gly Glu Val Met Arg Cys Ser Glu Glu
195 200 205

Glu Asn Thr Arg Leu Phe His Gly Val Leu Gly Gly Leu Gly Gln Phe
210 215 220

Gly Ile Ile Thr Arg Ala Arg Ile Ser Leu Glu Pro Ala Pro Gln Arg
225 230 235 240

Val Arg Trp Ile Arg Val Leu Tyr Ser Ser Phe Lys Val Phe Thr Glu
245 250 255

Asp Gln Glu Tyr Leu Ile Ser Met His Gly Gln Leu Lys Phe Asp Tyr
260 265 270

Val Glu Gly Phe Val Ile Val Asp Glu Gly Leu Val Asn Asn Trp Arg
275 280 285

Ser Ser Phe Phe Ser Pro Arg Asn Pro Val Lys Ile Ser Ser Val Ser
290 295 300

Ser Asn Gly Ser Val Leu Tyr Cys Leu Glu Ile Thr Lys Asn Tyr His
305 310 315 320

Asp Ser Asp Ser Glu Ile Val Asp Gln Glu Val Glu Ile Leu Met Lys
325 330 335

Lys Leu Asn Phe Ile Pro Thr Ser Val Phe Thr Thr Asp Leu Gln Tyr
340 345 350

Val Asp Phe Leu Asp Arg Val His Lys Ala Glu Leu Lys Leu Arg Ser
355 360 365

Lys Asn Leu Trp Glu Val Pro His Pro Trp Leu Asn Leu Phe Val Pro
370 375 380

Lys Ser Arg Ile Ser Asp Phe Asp Lys Gly Val Phe Lys Gly Ile Leu
385 390 395 400

Gly Asn Lys Thr Ser Gly Pro Ile Leu Ile Tyr Pro Met Asn Lys Asp
405 410 415

Lys Trp Asp Glu Arg Ser Ser Ala Val Thr Pro Asp Glu Glu Val Phe
420 425 430

Tyr Leu Val Ala Leu Leu Arg Ser Ala Leu Thr Asp Gly Glu Glu Thr
435 440 445

Gln Lys Leu Glu Tyr Leu Lys Asp Gln Asn Arg Arg Ile Leu Glu Phe
450 455 460

Cys Glu Gln Ala Lys Ile Asn Val Lys Gln Tyr Leu Pro His His Ala
465 470 475 480

Thr Gln Glu Glu Trp Val Ala His Phe Gly Asp Lys Trp Asp Arg Phe
485 490 495

Arg Ser Leu Lys Ala Glu Phe Asp Pro Arg His Ile Leu Ala Thr Gly
500 505 510

Gln Arg Ile Phe Gln Asn Pro Ser Leu Ser Leu Phe Pro Pro Ser Ser
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Ser Ser Ser Ser Ala Ala Ser Trp
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<213> Arabidopsis thaliana

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ccagtcatcg tctacccagt gaacaaatca aagtaagaaa gaaagaaaga aagagctagt 1560

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cacgacaaga gaagagtgga gatcccattt cggggacaag tggggagaat ttgtgaggag 1860

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<211> 504
<212> PRT
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<400> 12

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			20					25					30		
Leu	Pro	Leu	Val	Gly	His	Leu	Glu	Phe	Glu	His	Val	His	His	Ala	Ser
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Lys	Asp	Phe	Gly	Asn	Arg	Tyr	Gln	Leu	Ile	Pro	Leu	Ala	Val	Leu	His
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Pro	Lys	Ser	Val	Ser	Asp	Ile	Ala	Ser	Thr	Ile	Arg	His	Ile	Trp	Met
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Met	Gly	Thr	His	Ser	Gln	Leu	Thr	Val	Ala	Ala	Arg	Gly	Arg	Gly	His
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Glu Gln Leu Ile Ser Ala Gln Gly His Lys Phe Asp Tyr Ile Glu Gly
245 250 255

Phe Val Ile Ile Asn Arg Thr Gly Leu Leu Asn Ser Trp Arg Leu Ser
260 265 270

Phe Thr Ala Glu Glu Pro Leu Glu Ala Ser Gln Phe Lys Phe Asp Gly
275 280 285

Arg Thr Leu Tyr Cys Leu Glu Leu Ala Lys Tyr Leu Lys Gln Asp Asn
290 295 300

Lys Asp Val Ile Asn Gln Glu Val Lys Glu Thr Leu Ser Glu Leu Ser
305 310 315 320

Tyr Val Thr Ser Thr Leu Phe Thr Thr Glu Val Ala Tyr Glu Ala Phe
325 330 335

Leu Asp Arg Val His Val Ser Glu Val Lys Leu Arg Ser Lys Gly Gln
340 345 350

Trp Glu Val Pro His Pro Trp Leu Asn Leu Leu Val Pro Arg Ser Lys
355 360 365

Ile Asn Glu Phe Ala Arg Gly Val Phe Gly Asn Ile Leu Thr Asp Thr
370 375 380

Ser Asn Gly Pro Val Ile Val Tyr Pro Val Asn Lys Ser Lys Trp Asp
385 390 395 400

Asn Gln Thr Ser Ala Val Thr Pro Glu Glu Glu Val Phe Tyr Leu Val
405 410 415

Ala Ile Leu Thr Ser Ala Ser Pro Gly Ser Ala Gly Lys Asp Gly Val
420 425 430

Glu Glu Ile Leu Arg Arg Asn Arg Arg Ile Leu Glu Phe Ser Glu Glu
435 440 445

Ala Gly Ile Gly Leu Lys Gln Tyr Leu Pro His Tyr Thr Thr Arg Glu
450 455 460

Glu Trp Arg Ser His Phe Gly Asp Lys Trp Gly Glu Phe Val Arg Arg
465 470 475 480

Lys Ser Arg Tyr Asp Pro Leu Ala Ile Leu Ala Pro Gly His Arg Ile
485 490 495

Phe Gln Lys Ala Val Ser Tyr Ser
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: primer or probe

<400> 13

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<220>
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: primer or probe

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: primer or probe

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: primer or probe

<400> 16

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<210> 17
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: primer or probe

<400> 17

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<210> 18
<211> 31
<212> DNA
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<220>
<223> Description of Artificial Sequence:oligonucleotide
: primer or probe

<400> 18

gcggtaccca aagtggtgag aacgactaac a 31

<210> 19
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:oligonucleotide
: primer or probe

<400> 19

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<210> 20
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: primer or probe

<400> 20

gcggtaccag acgatgaacg tacttgtctg ta 32

<210> 21
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: primer or probe

<400> 21

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<210> 22
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: primer or probe

<400> 22

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<210> 23
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: primer or probe

<400> 23

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<210> 24
<211> 32
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<220>
<223> Description of Artificial Sequence:oligonucleotide
: primer or probe

<400> 24

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<210> 25
<211> 1728
<212> DNA
<213> Arabidopsis thaliana

<400> 25

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gttagtaccc caaaagaatt accttcttca aatccttcag atattcgttc ctcattagtt 180

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<210> 26
<211> 1506
<212> DNA
<213> Arabidopsis thaliana

<400> 26

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atcatctccg cagcctctca tgacttcgga aacataacca ccgtgacccc cggcggcgta 180

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tccggcggag taatcgtcaa catgacgtgt atcactgacg tggtggtttc aaaagacaag 360

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gaattgttct atggagtgtt aggaggtttg ggtcaatttg gaattataac gagagccaga 660

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acaactttta caaaggacca agaacgtttg atatcaatgg caaacgatat tggagtcgac 780

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ttttga 1506

<210> 27
<211> 1572
<212> DNA
<213> Arabidopsis thaliana

<400> 27

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cacaacgaat tcgccggaaa actcacctcc tcctcctcct ccgtcgaatc agccgccaca 180

gatttcggcc acgtcaccaa aatcttccct tccgccgtct taatcccttc ctccgttgaa 240

gacatcacag atctcataaa actctctttt gactctcaac tgtcttttcc tttagccgct 300

cgtggtcacg gacacagcca ccgtggccaa gcctcggcta aagacggagt tgtggtcaac 360

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gacgtggacg ctgcgtggct atggattgag gtgttgaata aaactttgga gttagggtta 480

acgccggttt cttggacgga ttatttgtat ttaacagtcg gtgggacgtt atcaaacggc 540

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gttattactg gaaaaggaga gattgcaact tgttccaagg acatgaactc ggatcttttc 660

ttcgcggtgt taggaggttt gggtcaattc ggcattataa caagagccag aattaaactt 720

gaagtagctc cgaaaagggc caagtggtta aggtttctat acatagattt ctccgaattc 780

acaagagatc aagaacgagt gatatcgaaa acggacggtg tagatttctt agaaggttcc 840

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cacttgagga tcgcctcaat ggtcaaacga catcgtgtca tctactgcct tgaagtcgtc 960

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ccatggctta atctcttcgt accaaaaact caaatctcca aatttgatga tggtgttttt 1200

aagggtatta tcctaagaaa taacatcact agcggtcctg ttcttgttta tcctatgaat 1260

cgcaacaagt ggaatgatcg gatgtctgcc gctatacccg aggaagatgt attttatgcg 1320

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tcatcacaag aaggatgggt tagacatttt ggtccgaggt ggaatatttt cgtagagaga 1500

aaatataaat atgatcccaa aatgatatta tcaccgggac aaaatatatt tcaaaaaata 1560

aactcgagtt ag 1572

<210> 28
<211> 1575
<212> DNA
<213> Arabidopsis thaliana

<400> 28

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acggtcctaa ccgatccctt ctccatctct gccgcttctc acgacttcgg taacataacc 180

gacgaaaatc ccggcgccgt cctctgccct tcctccacca cggaggtggc tcgtctcctc 240

cgtttcgcta acggaggatt ctcttacaat aaaggctcaa ccagccccgc gtctactttc 300

aaagtggctg ctcgaggcca aggccactcc ctccgtggcc aagcctctgc acccggaggt 360

gtcgtcgtga acatgacgtg tctcgccatg gcggctaaac cagcggcggt tgttatctcg 420

gcagacggga cttacgctga cgtggctgcc gggacgatgt gggtggatgt tctgaaggcg 480

gcggtggata gaggcgtctc gccggttaca tggacggatt atttgtatct cagcgtcggc 540

gggacgttgt cgaacgctgg aatcggtggt cagacgttta gacacggccc tcagattagt 600

aacgttcatg agcttgacgt tattaccgga aaaggtgaaa tgatgacttg ctctccaaag 660

ttaaaccctg aattgttcta tggagtttta ggaggtttgg gtcaattcgg tattataacg 720

agggccagga ttgcgttgga tcatgcaccc acaagggtga aatggtctcg catactctac 780

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gaatatttga tgcactatac aagaaaagaa gattgggtta aacattttgg accaaaatgg 1500

gatgattttt taagaaagaa aattatgttt gatcccaaaa gactattgtc tccaggacaa 1560

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<210> 29
<211> 1611
<212> DNA
<213> Arabidopsis thaliana

<400> 29
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accgtccacc cttccgactt agcctccgtc tcctcagact tcggtatgct gaagtcacct 180

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ttaatctcaa tgcatggtca attaaagttt gattacgtgg aaggttttgt gattgtggac 840

gaaggactcg tcaacaattg gagatcttct ttcttctctc cacgtaaccc cgtcaagatc 900

tcctctgtta gttccaacgg ctctgttttg tattgccttg agatcaccaa gaactaccac 960

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gctgagtttg atccgcgaca catactcgct actggtcaga gaatctttca aaacccatct 1560

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<210> 30
<211> 1515
<212> DNA
<213> Arabidopsis thaliana

<400> 30
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gcggtcttac atcccaaatc ggtaagcgac atcgcctcaa cgatacgaca catctggatg 240

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caagctcaaa caagacatgg aattgttata cacatggaat cactccatcc ccagaagctg 360

caggtctaca gtgtggattc ccctgctcca tatgttgatg tgtctggtgg tgagctgtgg 420

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ctgcatttaa ctgtaggtgg tactctgtcc aatgctggaa taagcggcca ggcattccga 540

catggaccac agatcagcaa tgttcatcaa ctggagattg tcacaggaaa aggcgagatc 600

ctaaactgta caaagaggca gaacagcgac ttatttaatg gtgttcttgg tggtttaggt 660

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acgacaagag aagagtggag atcccatttc ggggacaagt ggggagaatt tgtgaggagg 1440

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gtctcatact catga 1515

<210> 31
<211> 84
<212> DNA
<213> Arabidopsis thaliana

<400> 31
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tcggcgatga taccagagat cgat 84

<210> 32
<211> 28
<212> PRT
<213> Arabidopsis thaliana

<400> 32
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1 5 10 15

Asp Asn Arg Met Ser Ala Met Ile Pro Glu Ile Asp
20 25

<210> 33
<211> 2814
<212> DNA
<213> Arabidopsis thaliana

<400> 33

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cattccataa acggacaagc cgcggcgggg aggaacggtg tggtggttga aatgaaccac 360

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ataacaagaa attgatacca aaaagtaggg aaaggagagg tgatgagatg ctcagaagaa 720

gagaacacaa ggctattcca tggagttctt ggtggattag gtcaatttgg gatcatcact 780

cgagcacgaa tctctctcga accagctccc caaagggtaa tatttttta atgactagct 840

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aaccaactct actggaatct taacttatcc ttggttttgg taggctttta tagcaacacg 1680

gtttttttaa ttttcctatt ccagattttg tatattaaat gtcgattttt tttcttttg 1740

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<212> PRT
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Arg Ile Gly Ala Ile Asp Val Asp Gly His Phe Thr Val His Pro Ser
        35                  40                  45

Asp Leu Ala Ser Val Ser Ser Asp Phe Gly Met Leu Lys Ser Pro Glu
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Glu Pro Leu Ala Val Leu His Pro Ser Ser Ala Glu Asp Val Ala Arg
65                  70                  75                  80

Leu Val Arg Thr Ala Tyr Gly Ser Ala Thr Ala Phe Pro Val Ser Ala
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Arg Gly His Gly His Ser Ile Asn Gly Gln Ala Ala Ala Gly Arg Asn
            100                 105                 110

Gly Val Val Val Glu Met Asn His Gly Val Thr Gly Thr Pro Lys Pro
        115                 120                 125

Leu Val Arg Pro Asp Glu Met Tyr Val Asp Val Trp Gly Gly Glu Leu
    130                 135                 140

Trp Val Asp Val Leu Lys Lys Thr Leu Glu His Gly Leu Ala Pro Lys
145                 150                 155                 160

Ser Trp Thr Asp Tyr Leu Tyr Leu Thr Val Gly Gly Thr Leu Ser Asn
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Ala Gly Ile Ser Gly Gln Ala Phe His His Gly Pro Gln Ile Ser Asn
            180                 185                 190

Val Leu Glu Leu Asp Val Val Thr Gly Lys Gly Glu Val Met Arg Cys
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Ser Glu Glu Glu Asn Thr Arg Leu Phe His Gly Val Leu Gly Gly Leu
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Gly Gln Phe Gly Ile Ile Thr Arg Ala Arg Ile Ser Leu Glu Pro Ala
225                 230                 235                 240

Pro Gln Arg Val Arg Trp Ile Arg Val Leu Tyr Ser Ser Phe Lys Val
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Phe Thr Glu Asp Gln Glu Tyr Leu Ile Ser Met His Gly Gln Leu Lys
            260                 265                 270

Phe Asp Tyr Val Glu Gly Phe Val Ile Val Asp Glu Gly Leu Val Asn
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Asn Trp Arg Ser Ser Phe Phe Ser Pro Arg Asn Pro Val Lys Ile Ser
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Asn Tyr His Asp Ser Asp Ser Glu Ile Val Asp Gln Glu Val Glu Ile
325 330 335

Leu Met Lys Lys Leu Asn Phe Ile Pro Thr Ser Val Phe Thr Thr Asp
340 345 350

Leu Gln Tyr Val Asp Phe Leu Asp Arg Val His Lys Ala Glu Leu Lys
355 360 365

Leu Arg Ser Lys Asn Leu Trp Glu Val Pro His Pro Trp Leu Asn Leu
370 375 380

Phe Val Pro Lys Ser Arg Ile Ser Asp Phe Asp Lys Gly Val Phe Lys
385 390 395 400

Gly Ile Leu Gly Asn Lys Thr Ser Gly Pro Ile Leu Ile Tyr Pro Met
405 410 415

Asn Lys Asp Lys Trp Asp Glu Arg Ser Ser Ala Val Thr Pro Asp Glu
420 425 430

Glu Val Phe Tyr Leu Val Ala Leu Leu Arg Ser Ala Leu Thr Asp Gly
435 440 445

Glu Glu Thr Gln Lys Leu Glu Tyr Leu Lys Asp Gln Asn Arg Arg Ile
450 455 460

Leu Glu Phe Cys Glu Gln Ala Lys Ile Asn Val Lys Gln Tyr Leu Pro
465 470 475 480

His His Ala Thr Gln Glu Glu Trp Val Ala His Phe Gly Asp Lys Trp
485 490 495

Asp Arg Phe Arg Ser Leu Lys Ala Glu Phe Asp Pro Arg His Ile Leu
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Pro Ser Ser Ser Ser Ser Ser Ala Ala Ser Trp
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<212> DNA
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aatgcaaaac cacatgcatg cttccatatt tctatcataa tcttataaga aaaaacacta 480

ctaagtgaaa tgattctgta tatatataac caatgccttt tgttttgtga tattttatgt 540

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tt 842